We claim:

1. A computer-implemented method for processing a detected anomaly in an anatomical structure, the method comprising:

in a digital representation comprising a representation of the anomaly, measuring a characteristic of a neck of the anomaly; and

based at least on the characteristic of the anomaly neck, classifying the anomaly.

2. A computer-readable medium comprising computer-executable instructions for performing the method of claim 1.

3. The method of claim 1 wherein classifying comprises disqualifying the anomaly from being of interest.

4. The method of claim 1 wherein classifying comprises designating the anomaly as being of interest.

5. The method of claim 1 wherein the candidate anomaly comprises a surface anomaly.

6. The method of claim 1 wherein the candidate anomaly comprises a wall surface anomaly.

7. Performing the method of claim 1 for a plurality of candidate anomalies.

8. The method of claim 7 wherein the candidate anomalies are discovered via measured curvatures associated with regions in the digital representation.

9. The method of claim 1 wherein:

the anatomical structure comprises a colon; and

classifying the anomaly comprises designating the anomaly as a polyp.

10. The method of claim 1 wherein:

the anatomical structure comprises a bronchus; and

classifying the anomaly comprises designating the anomaly as a lesion.

11. The method of claim 1 wherein the characteristic comprises neck size.

12. The method of claim 1 wherein the characteristic comprises neck height.

13. The method of claim 1 wherein the characteristic comprises neck circumference.

14. The method of claim 1 wherein the characteristic comprises area enclosed by the neck.

15. The method of claim 1 wherein the characteristic comprises neck angle.

16. The method of claim 1 wherein the characteristic comprises orientation of the neck.

17. The method of claim 1 wherein the characteristic comprises irregularity of the neck.

18. The method of claim 17 wherein irregularity comprises jaggedness of the neck.

19. The method of claim 17 wherein irregularity of the neck is determined via a fractal technique.

20. The method of claim 1 wherein the characteristic comprises curvature of the neck.

21. The method of claim 20 wherein the curvature comprises Gaussian curvature.

22. The method of claim 20 wherein the curvature comprises mean curvature.

23. The method of claim 20 wherein the curvature comprises principal curvature.

24. The method of claim 23 wherein the curvature comprises maximum principal curvature.

25. The method of claim 23 wherein the curvature comprises minimum principal curvature.

26. The method of claim 20 wherein the curvature comprises shape index.

27. The method of claim 20 wherein the curvature comprises curvedness.

28. The method of claim 20 wherein the curvature is calculated via partial derivatives.

29. The method of claim 20 wherein the curvature is calculated via finite differences.

30. The method of claim 20 wherein the curvature is calculated via convolution kernels.

31. The method of claim 20 wherein the curvature is calculated via fitting approximating curves.

32. The method of claim 20 wherein the curvature is calculated via fitting approximating surfaces.

33. The method of claim 1 wherein the characteristic comprises relation of the neck to adjacent haustral folds.

34. The method of claim 1 further comprising:

fitting a plane to the circumference of the neck;

measuring protrusion of the anomaly; and

based also at least on the characteristic of the anomaly neck, classifying the anomaly.

35. The method of claim 1 further comprising:

identifying an edge in the representation of the anomaly and an adjacent wall of the representation of the anatomical structure;

wherein the characteristic comprises an angle made by a junction of the anomaly with the wall.

36. The method of claim 35 wherein the edge is identified via segmenting.

37. The method of claim 35 wherein the edge is identified via an isosurface technique.

38. The method of claim 35 wherein the edge is identified via a level set technique.

39. A computer-implemented method for processing a detected candidate polyp in a virtual colon, the method comprising:

via the virtual colon, measuring a characteristic of a neck of the detected candidate polyp; and

based at least on the characteristic of the neck, classifying the candidate polyp.

40. A computer-implemented method for processing an anomaly in an anatomical structure, the method comprising:

in a digital representation of the anatomical structure comprising a representation of the anomaly, identifying a neck of the anomaly;

based at least on the anomaly neck, measuring protrusion of the anomaly; and

based at least on the protrusion of the anomaly, classifying the anomaly.

41. A computer-implemented method for processing an anomaly in an anatomical structure, the method comprising:

in a digital representation of the anatomical structure comprising a representation of the anomaly, measuring an aspect ratio of the anomaly;

based at least on the aspect ratio, classifying the anomaly.

42. The method of claim 41 further comprising:

fitting a base of the anomaly to a shape.

43. The method of claim 42 wherein the shape comprises an ellipse.

44. The method of claim 40 wherein measuring protrusion comprises fitting a plane to the circumference of the neck.

45. A computer-implemented method for processing an anomaly in an anatomical structure, the method comprising:

in a digital representation of the anatomical structure comprising a representation of the anomaly, measuring a normalized wall thickness associated with the anomaly; and

based at least on the normalized wall thickness associated with the candidate anomaly, classifying the anomaly.

46. The method of claim 45 wherein classifying comprises disqualifying the anomaly as being of interest.

47. The method of claim 45 wherein classifying comprises designating the anomaly as being of interest.

48. Performing the method of claim 45 for a plurality of candidate anomalies.

49. The method of claim 48 wherein the candidate anomalies are discovered via measured curvatures associated with regions in the digital representation.

50. The method of claim 45 wherein:

the anatomical structure comprises a colon; and

classifying the anomaly comprises designating the anomaly as a polyp.

51. The method of claim 45 wherein:

the anatomical structure comprises a bronchus; and

classifying the anomaly comprises designating the anomaly as a lesion.

52. A computer-readable medium having computer-executable instructions for performing the method of claim 45.

53. A computer-implemented method for determining wall thickness for an anomaly detected on a wall in a digital representation of an anatomical structure, the method comprising:

based at least on an initial point at an arbitrary distance from or within the wall, calculating various thresholds for the wall; and

based at least on the thresholds, calculating a wall thickness associated with the anomaly.

54. A computer-implemented method of classifying an anomaly appearing in a digitized image of an anatomical structure of interest, wherein the digitized image portrays a wall of the anatomical structure and at least one anomaly of the anatomical structure, the method comprising:

calculating an anomaly wall thickness at a location of the anomaly;

measuring plural wall thicknesses at locations proximate to but away from the anomaly;

normalizing the anomaly wall thickness based on the plural wall thicknesses; and

based at least on the normalized anomaly wall thickness, classifying the anomaly.

55. The method of claim 54 wherein the locations proximate to but away from the anomaly are selected from an annulus surround a neck of the anomaly.

56. The method of claim 55 wherein a radius of the annulus is fixed in software.

57. The method of claim 55 wherein a radius of the annulus is adjustable by a user of software performing the method.

58. The method of claim 55 wherein the annulus begins at a location immediately at a boundary of the neck.

59. The method of claim 55 wherein the annulus begins at a location set off from the boundary of the neck.

60. The method of claim 54 wherein classifying comprises:

consulting an atlas of normal wall thicknesses.

61. The method of claim 54 further comprising:

determining a normal wall thickness based on a measurement of distension and location within the anatomical structure;

wherein classifying comprises comparing normalized wall thickness to the normal wall thickness.

62. The method of claim 54 further comprising:

determining a normal wall thickness based on gender associated with the anatomical structure;

wherein classifying comprises comparing normalized wall thickness to the normal wall thickness.

63. The method of claim 54 further comprising:

determining a normal wall thickness based on age range associated with the anatomical structure;

wherein classifying comprises comparing normalized wall thickness to the normal wall thickness.

64. The method of claim 54 further comprising:

determining a normal wall thickness based on body habitus associated with the anatomical structure;

wherein classifying comprises comparing normalized wall thickness to the normal wall thickness.

65. The method of claim 54 further comprising:

determining a normal wall thickness based on body habitus associated with the anatomical structure;

wherein classifying comprises comparing normalized wall thickness to the normal wall thickness.

66. The method of claim 54 further comprising:

limiting the locations for the plural wall thicknesses to those not indicative of an anomaly.

67. The method of claim 54 further comprising:

determining whether wall thickness measurements are made on a haustral fold;

wherein classifying is based at least on whether wall thickness measurements are made on a haustral fold.

68. A computer-implemented method of classifying an anomaly appearing in a digitized image of an anatomical structure of interest, wherein the digitized image portrays a wall of the anatomical structure and at least one anomaly of the anatomical structure, the method comprising:

calculating a normalized wall thickness via a plurality of measurements of thickness of the wall of the anatomical structure;

measuring a thickness of a portion of the wall associated with the anomaly; and

based on a comparison between the normalized wall thickness and the thickness of the portion of the wall associated with the anomaly, classifying the anomaly as an anomaly of interest.

69. A computer-implemented method for processing an anomaly in a colon, the method comprising:

in a digital representation of the colon comprising a representation of the anomaly, matching a digital template to the anomaly;

based at least on the matching, classifying the anomaly.

70. The method of claim 69 wherein the digital template represents a hemispherical idealized anomaly of interest.

71. The method of claim 69 wherein the digital template represents a round plateau idealized anomaly of interest.

72. The method of claim 69 wherein the digital template represents an idealized classic polyp model.

73. The method of claim 69 wherein the matching generates a similarity coefficient.

74. The method of claim 69 further comprising:
as a result of the matching, determining a center of the anomaly.

75. The method of claim 69 further comprising:
as a result of the matching, determining a radius of the anomaly.

76. The method of claim 69 further comprising:
as a result of the matching, determining an orientation of the anomaly.

77. The method of claim 69 further comprising:
as a result of the matching, determining a cross-sectional area of the anomaly.

78. The method of claim 69 further comprising:
as a result of the matching, determining a cross-sectional volume of the anomaly.

79. The method of claim 69 wherein matching comprises:
shifting the template to generate a cross-correlation series.

80. A computer-implemented method of detecting anomalies of interest in a virtual anatomical structure, the method comprising:
matching a template to a region of the virtual anatomical structure; and
based at least on the matching, eliminating the region from consideration.

81. The method of claim 80 wherein the template represents a rectal tube.

82. A computer-implemented method of classifying a candidate anomaly of interest in a virtual anatomical structure, the method comprising:

measuring a characteristic of a neck of the anomaly of interest;

calculating a normalized wall thickness for the anomaly of interest;

calculating a similarity between the anomaly of interest and a template; and

based at least on the characteristic of the neck, the normalized wall thickness, and the similarity, classifying the candidate anomaly.

83. A computer-implemented method of depicting a virtual anatomical structure, the method comprising:

detecting a plurality of candidate anomalies of interest in the virtual anatomical structure;

calculating a normalized wall thickness for the anomalies of interest; and

presenting a graphical depiction of the anomalies of interest for consideration by a viewer, wherein wall thickness associated with an anomaly is used to choose a color for the graphical depiction.

84. A computer-generated user interface for presenting a graphical representation of an anatomical structure, the user interface comprising:

a depiction of the anatomical structure;

wherein regions of the anatomical structure having a normalized wall thickness over a threshold amount are depicted specially.

85. The computer-generated user interface of claim 84 wherein regions of the anatomical structure having a normalized wall thickness over the threshold are depicted in a distinctive color.

86. The computer-generated user interface of claim 85 wherein regions of the anatomical structure having a normalized wall thickness over a second threshold are depicted in a second distinctive color.

87. A computer-generated user interface for presenting a graphical representation of an anatomical structure, the user interface comprising:

a depiction of the anatomical structure;

wherein regions of the anatomical structure having a curvature indicative of an anomaly neck are depicted specially.

88. The computer-generated user interface of claim 87 wherein regions of the anatomical structure having a curvature indicative of an anomaly neck are depicted in a distinctive color.

89. The computer-generated user interface of claim 88 wherein the curvature indicative of an anomaly neck comprises hyperbolic curvature.

90. A classifier for classifying a candidate anomaly of interest in a virtual anatomical structure, the classifier comprising:

means for calculating at least one of the following characteristics associated with the anomaly: a characteristic of a neck of the anomaly, a normalized wall thickness of the anomaly, and a similarity between the anomaly and a digital template; and

means for classifying the anomaly based on the at least one characteristic.

91. The classifier of claim 90 wherein the means for classifying comprises a neural network.